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John R. Gordon

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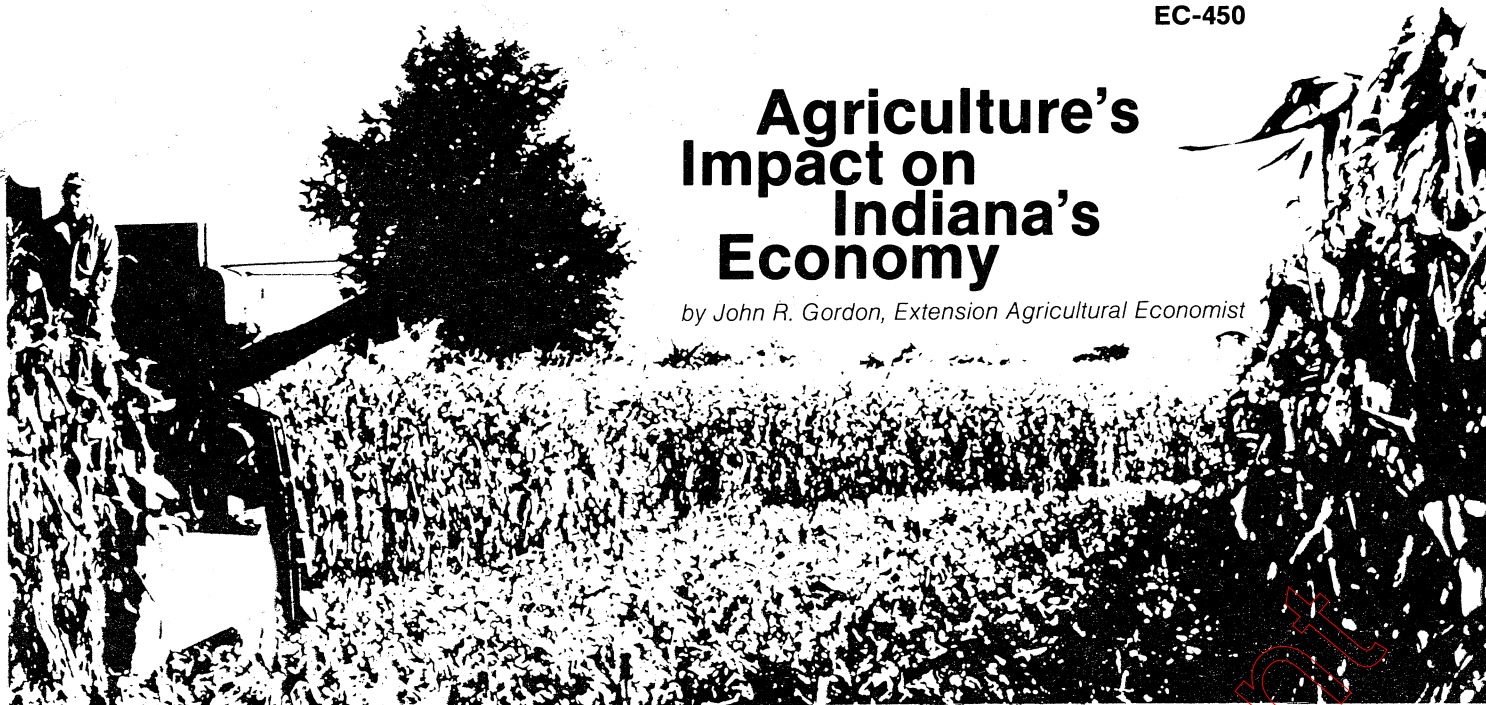
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# Agriculture's Impact on Indiana's Economy

by John R. Gordon, Extension Agricultural Economist



Agriculture makes substantial contributions to Indiana's economy through its impact on the total value of goods and services produced, personal income, and employment. Of these impacts, the most easily observed is agriculture's contribution to the total value of goods and services produced in Indiana.

Each year Indiana farmers sell several million dollars worth of agricultural products and then spend the money to pay farm expenses and to buy consumer items for their households. In this way, farmers add directly to the total value of goods and services produced in the state.

Yet the total impact of agriculture on Indiana's economy is much larger than just the economic activity directly attributable to farming. A great deal of activity is stimulated in nonfarm sectors when businesses use the money received from farmers to pay bills and to replace the items sold.

For example, consider the chain of events that is set in motion when a farmer sells his corn and buys a new tractor. The machinery dealer uses some of the money to pay his expenses, including utility bills, taxes, and salaries and wages due his salesmen and to order the tractor from a manufacturer. Each recipient of the machinery dealer's money will probably re-spend some of it. To produce the tractor, the farm machinery manufacturer will need to purchase steel, tires, electricity and labor as well as other items. In turn, the steel company may order coal and other materials from its suppliers. This re-spending process continues and spreads throughout the entire economy as the original farm-created dollars continue to generate indirect impacts.

A similar chain of effects occurs among the industries handling and processing farm products. These firms must purchase additional inputs from their suppliers, and these suppliers will, in turn, buy needed items.

Tracing these impacts through the economy is extremely complicated because of the vast number of re-spending effects created. The impact on Indiana's economy gradually diminishes as the original farm created dollars are spent outside the state's boundaries. The total impact of both direct and indirect economic activity is referred to as the multiplier effect.

A recent study<sup>1</sup> conducted in the Department of Agricultural Economics at Purdue identified and quantified several impact multipliers for Indiana's agricultural sector. Care should be exercised in interpreting these multipliers. The change should come through changes in physical production of farm products rather than in changes in the price of those products.<sup>2</sup> Briefly, the multipliers can be summarized:

- A \$1 increase in agricultural production will stimulate or require \$2.63 of production from Indiana's non-agricultural sector.
- If net farm income increases by \$1 from increased agricultural production, nonfarm personal income in Indiana can be expected to rise by \$3.25.
- For each Indiana farm worker there are two workers employed within the state to supply inputs, process products, and sell consumer items.

Obviously, the agricultural sector has an important role in Indiana's economy.<sup>3</sup>

<sup>1</sup>The study referred to is an economic base analysis of Indiana's economy conducted by John R. Gordon. The base year was 1972. Details of the investigation have not yet been published. Other than these multipliers, data in this report are from the U.S. Department of Agriculture and the U.S. Department of Commerce.

<sup>2</sup>Prices of farm products do not have to remain constant for these multipliers to be applicable. The multipliers reflect the ratio of farm to nonfarm prices which occurred in the base year, 1972.

<sup>3</sup>The multipliers are operational when agricultural production declines as well as when production increases.

## What is Indiana agriculture's size?

There are 106,000 farms in Indiana with an average size of 165 acres.

The state has 17.5 million acres of farmland which constitutes 76.1 percent of all land in Indiana. Of this farmland, 13.5 million acres are cropland including pasture, 2.1 million acres are woodland, and 1.9 million acres are in farmsteads, ponds, and other miscellaneous uses. Eighty-five of Indiana's 92 counties have more than 50 percent of their land in farm use.

Those 17.5 million acres were valued in 1975 at an average of \$783 per acre. This means that Indiana agricultural producers have over \$13.8 billion invested in their land and buildings. On the average, each farmer has \$130,000 invested in the land and buildings on his farm.

## Agriculture's impact on goods and services

Farm marketing receipts in Indiana totaled about \$3 billion in 1974. About 40 percent of farm receipts were from the sale of livestock and 60 percent from crop sales.

Corn, soybeans, hogs and cattle are the leading farm commodities produced in Indiana. In 1974, cash receipts from these products were \$971.2 million for corn, \$750.6 million for soybeans, \$609.0 million for hogs, and \$260.4 million for cattle and calves. The remaining receipts came from a variety of products, including milk, poultry, eggs, honey, wool, and a wide assortment of vegetables, fruits and greenhouse nursery products.

Almost \$1 of each \$3 of Indiana agricultural production is sold to a foreign country. In 1974 Indiana's agricultural exports totaled \$967 million. Corn, soybeans and wheat comprise most of these foreign sales with export values of \$391 million, \$400 million, and \$69 million, respectively.

Indiana's farm production is an important part of agricultural production in the United States. Among the 50 states Indiana ranks, according to 1974 cash receipts:

- 3rd in hog production
- 3rd in soybean production
- 5th in corn production
- 5th in tomato production
- 7th in egg production
- 8th in turkey production
- 9th in all crop production
- 12th in all livestock production
- 8th in all agricultural production

Indiana farmers and their families are large purchasers of farm inputs and household goods. In 1974 farm production expenditures totaled about \$2.5 billion, including:

Expenditure (million)	Item purchased
\$403.9	feed
59.9	livestock
88.2	seed
260.0	fertilizer and lime
244.9	repair and operation of capital items
118.6	hired labor
104.3	interest on farm mortgage debt

Total gross capital expenditures on Indiana farms in 1974 was an estimated \$384 million which was distributed thus:

Expenditure (million)	Item purchased
\$120.2	buildings
65.6	tractors
25.7	trucks
12.0	automobiles
160.5	other machinery and equipment

Indiana farm families spent more than \$1 billion in 1973 for household goods, including:

Expenditure (million)	Item purchased
\$174.2	food for home consumption
39.2	food away from home
132.2	housing—rent or mortgage payment
73.8	home furnishings and equipment
77.2	household operation
68.6	clothing
236.0	automobiles
73.1	automobile insurance and repair
66.1	medical care
17.0	education
34.0	personal insurance
38.8	gifts and contributions
70.2	miscellaneous

Research on these marketing and purchasing patterns reveals that—if Indiana's agricultural production increases by \$1,000, total economic activity over the long run in the state will increase by \$3,633. The initial increase of \$1,000 in agriculture generates an increase of \$737 from manufacturing, \$1,080 from service and trade sectors and \$816 of income to households.



## Agriculture's impact on income

Indiana farmers' net income realized in 1974 from farming totaled \$901 million or about \$8,500 per farm.

A study of the relationship of farm income to nonfarm personal income reveals that—if agricultural production increases \$1,000, net income to farmers will increase, on the average, by \$225. In addition to this direct income to farmers, the agricultural sector has a large multiplier effect which spreads throughout the state's economy, and total income increases of \$730 to nonfarm households can also be expected from the \$1,000 increase in agricultural production.

## Agriculture's impact on employment and population

The total number of people living on Indiana farms is 374,590 or about 7 percent of the state's population.

In 67 of Indiana's 92 counties the majority of the population is rural although only one-third of the state's population is classified as rural (living in places of less than 2,500 residents).

About 142,000 persons work on Indiana farms. Of these, 126,000 are farm operators and members of their families and 16,000 are hired farm workers.

Only two other industries in Indiana employ more than 100,000 workers. Electrical and electronic equipment manufacturing employs 116,000 workers and primary metals manufacturing employs 103,000 persons in Indiana.

Indiana farm families also provide labor to nonfarm industries. About 50 percent of Indiana's farm operators reported in the 1969 Census of Agriculture that they worked more than half-time at a nonfarm job.

An investigation of the number of workers required to support each farm worker shows that—for each Indiana farm worker there are approximately two workers employed in the state in manufacturing, trade and services to furnish the farm worker with materials needed to produce his products, process and deliver food and fiber products, and to sell consumer items. A partial listing of this employment is included in Table 1. Still more workers are employed in other states and countries to handle and process farm products shipped out of Indiana.

Each additional \$1 million of production from Indiana's farms creates employment for about 100 nonfarm workers in the processing and sale of food and in manufacture and sale of farm equipment and supplies.

## Agriculture's impact on local government revenue

Farm property taxes paid in Indiana totaled \$115 million in 1974 or about \$6.56 per acre of farmland. That's equal to about 12 percent of the property tax revenue collected in Indiana.

**Table 1. Sales and employment in some Indiana farm-related businesses in 1972.**

Type of business	Number of establishments	Sales (\$1,000)	Employment in 1972
<b>Manufacturing</b>			
Food and kindred products	615	2,764,700	37,000
Agricultural chemicals	47	198,000	1,900
Farm and garden machinery	65	220,100	5,400
Food products machinery	18	NA	700
<b>Wholesaling</b>			
Farm product raw materials	664	1,539,010	4,672
Groceries	739	1,829,494	11,700
Farm machinery and equipment	203	197,870	1,380
<b>Retailing</b>			
Food stores	4,806	2,400,614	42,599
Eating and drinking places	8,342	904,181	73,853
Nurseries, lawn and garden supply	308	22,453	627
Florists	602	41,252	1,887
<b>Others</b>			
Farm product warehousing	NA	NA	217
Agricultural credit institutions	NA	NA	223

Source: 1972 Census of Manufacturing, 1972 Census of Retail Trade, and the 1972 Census of Wholesale Trade.

Historic Document

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